Source Water Assessment Program (SWAP) Report For Eagle Hill School

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

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Table 1: Public Water System (PWS) Information

PWS NAME	Eagle Hill School
PWS Address	Old Petersham Road
City/Town	Hardwick
PWS ID Number	2124003
Local Contact	David Crevier
Phone Number	(413) 477-6000

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	2124003-01G	217	533	Moderate
Well #2	2124003-02G	217	533	Moderate

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

? inventory land uses within the recharge areas of all public water supply sources;
? assess the susceptibility of drinking water sources to contamination from these land uses; and
? publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

INTRODUCTION

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. DESCRIPTION OF THE WATER SYSTEM

The Eagle Hill School obtains its water from two rock wells. Well #1 is located near the swimming pool and is 450 feet deep. Well #2 is located behind the cafeteria, and is 360 feet deep. Well #2 supplies water to the cafeteria and the gymnasium and Well # 1 supplies the rest of the school. Each well has a Zone I of 217 feet and an Interim Wellhead Protection Area (IWPA) of 571 feet. The wells are located in a sand and gravel aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone Is and IWPAs. The wells serving the facility have no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. DISCUSSION OF LAND USES IN THE PROTECTION AREAS

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:
1. **Inappropriate activities in Zone Is,**
2. **Aboveground storage tank (AST) with fuel oil,**
3. **Septic system,**
4. **Graphics lab/small printing**; &**Science lab**,
5. **Transportation corridor; and**
6. **Storm water drain.**

The overall ranking of susceptibility to contamination for the well is High, based on the presence of at least one high threat land use or activity in the IWPA, as seen in Table 2.

1. Zone I – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone I. The facility's Zone Is contain a swimming pool, buildings, roads and parking area. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

2. Aboveground Storage Tanks – There are three ASTs with heating oil within the IWPA. The 275 gallon double-walled tanks are encased in cement, and located adjacent to the dormitory.

3. Septic system – The septic system is located in the IWPA of both wells. Staff and students should be trained on proper disposal of hazardous materials. The septic system was installed in 1998, and is pumped once or twice per year.

4. Graphics/Science labs – Projects carried out are limited in size. Projects include silk screenings, small amounts of printing, and some photography.

Table 2: Table of Activities within the Water Supply Protection Areas

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
School	Aboveground storage tanks	No	Well #2	Moderate	Fuel oil tanks in cement encasement
	Building and grounds maintenance facility	No	Both Wells	Moderate	Storage shed
	Parking areas & driveway	Both Wells	Both Wells	Moderate	Limit road salt usage and provide drainage away from wells
	Septic System	No	Both Wells	Moderate	See septic systems brochure attached
	Graphics lab/small printing & woodworking shop	No	Both Wells	High	Waste from these areas are not alloed to be discharged to a septic system as per Title 5
	Classroom building	No	Both Wells	Moderate	Include science & art classrooms -use of acrylic paints, varnishes & nontoxic clay
	Transportation corridor	No	Well #1	Moderate	Local road.
	Storm water drain	Well #1	Both Wells	Low	In the parking area, downgradient of the well.

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Recommendations:

- ✓ The facility is encouraged to have a working neutralization system to handle the wastes from the laboratories.
- ✓ Discharge from photographic, art, and science classrooms must go to a DEP approved tight tank or sewer (with permission of the sewer authority), and staff and students should be trained on proper disposal of hazardous materials and waste.

5. Transportation Corridor – Old Petersham Road runs in front of the property, within the IWPA. The location and the volume of traffic increase the chances of contamination from accidents , spills and road salt.

6. Stormwater drains – One stormwater drain located within the Zone I of Well #1 is downgradient of the well. The remainder of the storm water drains are located within the IWPAs of both wells #1 and #2.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. PROTECTION RECOMMENDATIONS

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Eagle Hill School should review and adopt the following recommendations at the facility:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements. Please note that water systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying their system.
- ✓ Consider well relocation if Zone I threats cannot be mitigated. Please note that DEP permit approvals must be obtained prior to the installation of a new well.

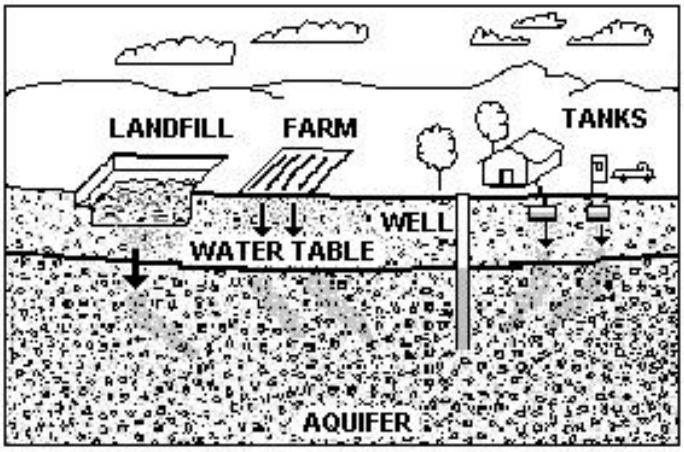

Figure 1: Example of how a well could become contaminated by different land uses and activities.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Incorporate groundwater education into school curriculum.
- ✓ Work with your community to ensure that storm water runoff is directed away from the well and is treated according to DEP guidance.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at

For More Information:

Contact Josephine Yemoh-Ndi in DEP's Worcester Office at (508) 792-7650 x 5030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at: www.state.ma.us/dep/brp/dws.

Copies of this assessment have been provided to the water department, town boards, the town library and the local media.

http://www.dep.state.ma.us/dep/bwp/dhm/dhmpubs.htm

Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.

- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachment for more information regarding septic systems.

Planning:

- ✓ Work with local officials in Hardwick to include the facility IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. ATTACHMENTS

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Fact sheet
- Fertilizer Use Fact sheet